African development finance journal http://journals.uonbi.ac.ke/index.php/adfj
November Vol1 No.2, 2017 PP132-159 ISSN 2522-3186

Effects of Operating Environment Factors on Infrastructure Finance Flows in the Capital Markets in Kenya

By: Stephen Mwangi [1] and Dr. Duncan Elly (PhD, CIFA) [2]

Abstract

Purpose – This study sought to establish the whether the operating environment factors affect efficient infrastructure finance flows in the capital markets in Kenya. Policy framework, legal environment, regulations and institutions are the operating environment factors which influence the infrastructure finance flows through the capital markets.

Methodology – The study was undertaken using descriptive research design where a questionnaire was used targeting a population of 100 infrastructure related institutions. The questionnaire used to collect quantitative data was on the Likert scale with numerical scores 1 to 5. Descriptive and regression analysis were conducted on the data to show how each independent variable of the operating environment factors influences the infrastructure finance flows.

Findings – Majority of respondents think that there are inadequate policies, laws and regulations while half of these respondents believe that the institutions lack the necessary capacity to operate efficiently and effectively. From the results, majority of these respondents agreed that there is need for an urgent review of the existing financial sector policies and institutions. Half of the respondents want the regulations revised but majority of these respondents believe that the existing laws do not require review. The results indicated that the policy framework, legal environment, regulations and institutions significantly affect the infrastructure finance flows through the capital markets in Kenya. From the results, it can be concluded that there are no adequate policy, legal, regulatory and institutional arrangements to facilitate the uptake of infrastructure finance in the capital markets. Further, it can be deduced that the policy, legal, regulatory and institutional regimes are poorly configured to deliver financing of infrastructure projects in the capital markets of Kenya. Finally, it can be inferred that the financial sector policies, regulations and institutions are not strong enough to provide a supportive environment in delivery of infrastructure finance.

Implications – The financial sector policies, laws, regulations and institutions need to be reviewed in order to create a conducive operating environment for financing of infrastructure investments. Benchmarking studies are critical for enhancement of policies, laws, regulations and institutions based on the international best practices for efficient and effective delivery of infrastructure finance through the capital markets in Kenya. Further research is recommended on effects of operating environment factors on infrastructure finance flows in the capital markets in Kenya.

Keywords: Infrastructure investments, policy framework, legal environment, regulations, institutions

[1] MBA Student at the University of Nairobi, School of Business (steve.mwangi2000@gmail.com)
[2] Lecturer at the University of Nairobi, School of Business (duncan.elly@uonbi.ac.ke)

Introduction

The global demand for public services will continue to increase exponentially with the rising population and dwindling government revenues available for infrastructure investments. Infrastructure provides direct services to the people or facilitates individuals to efficiently engage in other productive activities. The two classes of infrastructure are social and economic. Social infrastructure facilitates provision of services which improve the social welfare of the people. Examples of social infrastructure are schools, water supplies, hospitals, social halls and stadiums. Economic infrastructure facilitates people to undertake activities which improve on their livelihoods. Examples of economic infrastructure are roads, airports, seaports, waterways, irrigation, and information and communication technology (Ehlers, 2014).

According to the McKinsey Global Institute (2013), the global requirement for investment in new infrastructure is about USD 57 trillion over the next 18 years through year 2030. This means that global infrastructure investment should be increased by 60% from a cumulative investment of about USD 36 trillion in the last 18 years. This infrastructure gap and the serious challenge in acquiring funds to close the deficit has dominated political debate and aroused a lot of public interest (McKinsey Global Institute, 2013). According to Africa Infrastructure Country Diagnostic (AICD) 2008, infrastructure deficit in Africa requires annual investment estimated at USD 38 billion, and an additional USD 37 billion per year for operations and maintenance (Foster, 2008).

In Kenya, like in any other developing country, infrastructure is mainly developed and provided by the public sector with financing mainly coming from tax revenues, grants and borrowing from bilateral and multilateral agencies. In the last decade, there has been increased participation of the private sector in financing, development, and operations and maintenance of major infrastructure projects in the developing countries (Ehlers, 2014). In Kenya, the public sector has successfully raised infrastructure funds from the capital markets through issuance of treasury bonds and infrastructure bonds. The private sector has also successfully financed infrastructure projects through equity funds and bonds from the capital markets (Capital Markets Authority [CMA], 2009; Central Bank of Kenya [CBK], 2014).

The flow of private infrastructure financing has been low as compared to the available financial resources in the capital markets. An analysis of all Initial Public Offers (IPOs) at the

capital markets for the period from 2000 to 2016 shows a subscription of 423% with an oversubscribed amount of KES 248.73 billion. Subscription on IPOs for Safaricom was at 463%, Kengen at 340% and Access Kenya at 363% (CMA, 2009). Treasury Bonds issued/ re-opened during the period from July 2015 to March 2016 were subscribed at 116%, oversubscription being KES 36.66 billion (CBK, 2014). This analysis shows that the investors hold huge amounts of funds which are available for investment in the primary market, without even taking to account the funds available in the secondary market. This poses a question as to why the infrastructure investments are not able to absorb these funds held by the investors in the capital markets.

This study has explored some theories which have been formulated in relation to decision making in the public sector. The Partisan theory describes how macroeconomic policy is dependent on the political party in power because politicians base their decisions on party cycles rather than political business cycle (Froyen, 2009). The theory of administrative rationality puts a different perspective that administrative structures within governments should provide analytical techniques to assist senior public officials and politicians to make rational policy decisions (Smith, 1976). When it comes to developing regulations, the Public-Interest theory emphasize the important role the government plays as the guarantor of the public good through regulation of private functions in order to maximize the welfare of the public (Gerston, 1988). Finally, the Systems theory says that adaptive systems have the ability to monitor and regulate its own performance, and modify its behaviour to respond to changes in the environment (Cole & Kelly, 2011). This means that political, economic, financial, markets, legal, regulatory, institutional systems should be open and adaptive in nature in order to respond to public needs.

Operating Environment

Operating environment consists of policies, laws, regulations and institutions which create harmony in financial sector management. Policies provide the general guiding principles of addressing public issues and goals which will be achieved by a given national agenda (Kenya Law Reform Commission [KLRC], 2015). Legislation is used to enforce policies, allocate and distribute rights to citizens and influence the behaviour of people and organizations (Tucker & Henkel, 1992). Formulation of policies and legislation is conducted by institutions which are established by law.

Operating environment consists of independent variables which require operationalization for measurement. An independent variable tries to explain the changes in the observed outcomes (Hyndman, 2008).

Infrastructure finance flows

Infrastructure finance flows defines how financial resources are tapped from investors to fund infrastructure investments. Development of infrastructure finance provides opportunities to fund large scale physical infrastructure projects using new sources of finance from both domestic and international investors. These sources consist of private finance from the capital markets, which supplement traditional sources of taxes revenues, and loans and grants from foreign governments and multilateral agencies (Ehlers, 2014).

Investors provide equity and debt funds to potential borrowers for long term investments with an expectation of getting returns. In addition to equity and debt instruments, capital markets provide derivatives to suppliers of funds. Derivatives derive their value from the underlying value of other assets such as equity, bonds, foreign currencies and commodities (Bodie, Merton & Cleetion, 2009).

Operating environment and infrastructure finance flows

Effective policy, legal, regulatory and institutional frameworks are critical to stimulate private funding of infrastructure investments in a given country. Sound policies provide certainty in the financial sector, thus attracting investors to fund long term investment projects. Good laws ensure that financial contracts are adequately enforced to protect providers of long term funds with recourse in case of breach of such contract. Therefore, these laws provide assurance to investors on safety of their funds which subsequently enhances the level of finance flows from these investors to infrastructure investment projects (Tucker & Henkel, 1992). Regulations are anchored on sector specific laws with a purpose of expounding and clarifying the expected behavior and compliance to those statutory laws.

Regulations are established to influence the behavior of an industry in order to create order and efficiency (United Nations Industrial Development Organization [UNIDO], 2006). Institutions are established to enforce compliance with the set policies, laws, rules, regulations, treaties, covenants, procedures and codes of a society. Effective institutions ensure that fairness is accorded to all the players in the capital market, therefore boosting investor confidence when it comes to funding infrastructure projects. A well-managed

financial sector will be attractive to investors which will result in increased finance flows to long term investments such as infrastructure projects.

Capital Markets in Kenya

Capital markets provide large amounts of funds for long-term finance with low interest rates from institutional investors such as insurance companies, pension funds, mutual funds and credit unions. These institutional investors hold funds as long-term liabilities which need to be invested in form of long-term assets to subsequently generate returns (Ehlers, 2014). In addition, capital markets provide a platform for individual investors to finance capital investments. Aduda, Chogii, and Murayi (2014) find that capital markets are key sources of infrastructure funds for major projects under Vision 2030. The Kenyan capital markets consist of equity market, debt market, pooled funds and derivative market (CMA, 2013). While equity and bond markets are fairly developed, the derivative market is still at the nascent stages of development.

Capital markets offer great funding opportunities for infrastructure investments given that there are huge amounts of funds held by the private sector investors. However, there has been disparity between the requirements for infrastructure investment and available supply of infrastructure finance (Ehlers, 2014). Ehlers (2014) suggests that this disparity is due to inadequate pipeline of properly structured projects to attract appropriate financing. Investment in infrastructure projects requires complex legal and financial arrangements to ensure adequate resources are channeled towards these projects.

Research Problem

Infrastructure financing from tax revenues and foreign borrowing remains a big challenge in Kenya. This source of funds has been inadequate to meet the growing infrastructure investment demands as the need to finance other equally important sectors such as social services, national security, and operations and maintenance of existing infrastructure increases. This means that more infrastructure financing has to come from the private sector than it is currently available (Ehlers, 2014).

The Infrastructure Consortium for Africa (ICA) conducted the African Infrastructure Investment Survey to assess the private sector response when it comes to investing in infrastructure projects. According to Infrastructure Consortium for Africa (2014), ability to fund infrastructure investments was no longer an issue of concern, indicating that there is

abundant availability of finance in Africa. Infrastructure Consortium for Africa (2014) found that lack of political goodwill and policy uncertainty were the greatest challenges facing private investors. The private sector also considered country and political risks and lack of institutional capacity as key obstacles to funding of infrastructure projects.

Cambridge Economic Policy Associates (2015) carried out a study on "factors constraining provision of private finance to support infrastructure investment in DFID's focus countries". The study took a general view of the market for infrastructure finance in Kenya and concluded that constraints are due to inadequacy in bankability of projects, inappropriate skills by developers, insufficient capital and low government commitment.

Odero (2010) carried out a study on understanding and resolution of infrastructure related public-private partnership (PPP) disputes in Kenya. Odero (2010) argues that resolution of the PPP disputes is lengthy and consumes huge resources due to the demands and complexity of PPP agreements. In order to encourage investment in infrastructure through sustainable PPP arrangements, there is need for development of adequate legal and regulatory framework. In addition, there is need to develop a framework to address shortcomings in PPP arrangements in order to solve the conflicts which may arise at the various levels of dispute hierarchy.

The above studies recognize that there are serious challenges in funding of infrastructure projects by private investors due to weak operating environment factors. However, the studies have not established the cause-effect relationship between the operating environment factors and private finance flows in the capitals to fund infrastructure projects. This study sought to establish the extent to which existing policy, legal, regulatory and institutional frameworks impede development of infrastructure finance in the Kenyan capital markets. The study also sought to highlight any other peculiar obstacle to reduction of the gap between finance supply and infrastructure investment demand.

The study sought to answer the following research questions; Are there adequate policy, legal, regulatory and institutional arrangements to facilitate the uptake of infrastructure finance in the capital markets? To what extent does policy, legal, regulatory and institutional settings affect financing of infrastructure projects in the capital markets of Kenya? Is there a need to review the existing policy, legal, regulatory and institutional frameworks?

Objective of the Study

The objective of the study was to establish whether the operating environment factors affect efficient infrastructure finance flows in the capital markets in Kenya.

i. Are policy, legal, regulatory and institutional arrangements adequate?
ii. Does policy, legal, regulatory and institutional settings affect financing of infrastructure projects?
iii. Is there a need to review the existing policy, legal, regulatory and institutional frameworks?

Methodology

The study was undertaken using descriptive research design. Dane (1990) explains that descriptive research "involves examining a phenomenon to more fully define it or differentiate it from other phenomena". The study used qualitative approach to handling of data. Qualitative approach was used to generate primary data which were both quantitative and qualitative in nature. The quantitative data under the qualitative approach was Likert scale with numerical scores 1 to 5. The numerical scores represent responses to questions with options of strongly disagree, disagree, neutral, agree or strongly agree. The study had a target population of 100 consisting of institutions from the public and private sectors which are relevant to infrastructure investments and infrastructure financing in Kenya. These institutions play key roles in formulation and enforcement of policies, laws and regulations relating to the financial sector. There are also those institutions which develop infrastructure projects, provide investment funds and facilitate financial transactions at the capital markets. These target institutions for the study are the National Treasury, government ministries, state departments, financial sector regulatory agencies, investment banks/ stock brokers, insurance companies, pension funds, public investment agencies and private investment companies (NSE, 2016; Government of Kenya [GOK], 2016; Retirement Benefits Authority [RBA], 2016; Insurance Regulatory Authority [IRA], 2016). Due to the small size of the population, no sampling will be done.

Likert scale data can be analyzed through parametric tests if there is evidence that components are sufficiently inter-correlated and that the underlying variable is reliably measured by the grouped items (Sullivan & Artino, 2013). Internal consistency is attained when the questions or item measured belong to a construct in which it is included (Babbie & Mouton, 2009).

According to Bell and Bryman (2007), where Cronbach's alpha is used to test reliability of items under study, the values of these items shall always be higher than 0.7. Reliability test was done using Cronbach's alpha coefficient and the results evaluated to see whether parametric tests can be done in order to draw conclusions from inferential statistics and develop a regression model.

Mugenda (2008) says that validity is the correctness and significance of inferences which are founded on the study outcomes. Test for is done for both internal and external validity.

Analytical Model

The analytical model is based on the multiple linear regression function

$Y= a+b_1X_1+b_2X_2+b_3X_3+ \ldots\ldots\ldots\ldots\ldots\ldots+b_nX_n+\varepsilon_i$ where ε_i is the standard error and $\Sigma\varepsilon_i =0$.

The analytical model is $Y= a+b_1X_1+b_2X_2+b_3X_3+b_4X_4+\varepsilon$

Where Y is the dependent variable and X_1, X_2, X_3 and X_4 are independent variables.

Y is infrastructure finance flows

X_1 is policy framework

X_2 is legal environment

X_3 is regulations

X_4 is institutions

a is the y-intercept

b_1, b_2, b_3 and b_4 are regression coefficients of X_1, X_2, X_3 and X_4 respectively.

Results and Discussion

Descriptive Analysis

Responses to questions were analyzed under infrastructure finance flows, policy framework, legal environment, regulations and institutions. The respondents were asked to indicate their level of concurrence with the provided statements with rating options of strongly disagree, disagree, neutral, agree or strongly agree. The analysis below shows the median, mode and range of responses to each questions. In Likert scale data, the mode is very important as a measure of central tendency because it indicates the highest proportion of responses for each question.

Infrastructure finance flows

Results on whether the capital markets in Kenya provide adequate finance to fund public infrastructure investments indicate that only 9% of the respondents agreed while 46% disagreed with the statement. A proportion of 35% of these respondents remained neutral while only 10% of the respondents said that they strongly disagreed. The responses had a mode 2 (disagree) representing majority of respondents at 46% (46 out of 100). The median of the responses was 2 and the range was 3.

Policy framework

Results show that only 2% of the respondents strongly agreed and another 24% agreed that there are adequate policies to facilitate the uptake of infrastructure finance from the capital markets. A proportion of 43% of the respondents disagreed while 29% remained neutral. Only 2% of these respondents said that they strongly disagreed with the statement. The responses had a mode 2 (disagree) representing majority of respondents at 43%. The median of the responses was 3 and the range was 4.

On whether there was a need to urgently review the existing financial sector policies in order to promote innovativeness in infrastructure financing, 40% of the respondents strongly agreed and another 41% agreed with the statement. Only 3% of the respondents disagreed while 15% remained neutral. A meagre 1% of these respondents said that they strongly disagreed with the statement. The responses had a mode 4 (agree) representing majority of respondents at 41%. The median of the responses was 4 and the range was 4.

Results on whether political leaders make public policy to serve public good indicate that only 3% of the respondents strongly agreed and another 26% agreed with the statement. A proportion of 21% of the respondents disagreed while 41% remained neutral. Only 9% of these respondents said that they strongly disagreed with the statement. The responses had a mode 3 (neutral) representing majority of respondents at 41%. The median of the responses was 3 and the range was 4.

Results show that only 5% of the respondents strongly agreed and another 31% agreed that political leaders base their policy decisions on well defined technical advice from senior government officials. A proportion of 17% of the respondents disagreed while 43% remained neutral. Only 4% of the respondents said that they strongly disagreed with the statement. The responses had a mode 3 (neutral) representing majority of respondents at 43%. The median of the responses was 3 and the range was 4.

Legal environment

Results show that only 4% of the respondents strongly agreed and another 46% agreed the existing laws were adequate to govern the financial sector and also protect providers of infrastructure funds from incurring any loss as a result of breach of contract or other malpractices. A proportion of 15% of these respondents disagreed while 28% remained neutral. Only 7% of these respondents said that they strongly disagreed with the statement. The responses had a mode 4 (disagree) representing majority of respondents at 46%. The median of the responses was 3.5 and the range was 4.

On whether the existing laws needed an urgent review to enhance delivery of justice, results show that 16% of the respondents strongly agreed and another 43% agreed with the statement. A proportion of 13% of the respondents disagreed while 28% remained neutral. The responses had a mode 4 (agree) representing majority of respondents at 43%. The median of the responses was 4 and the range was 3.

Regulations

Results indicate that 11% of the respondents strongly agreed and another 32% agreed that existing regulations are adequate to create order and efficiency in the financial sector. A proportion of 21% of the respondents disagreed while 32% remained neutral. Only 4% of these respondents said that they strongly disagreed with the statement. The responses were bimodal with modes 4 (agree) and 3 (neutral) representing 32% of respondents each. The median of the responses was 3 and the range was 4.

On whether the existing regulations needed an urgent review to align them with emerging sector needs, results show that only 5% of the respondents strongly agreed while 54% agreed with the statement. A proportion of 10% of these respondents disagreed while 31% remained neutral. The responses had a mode 4 (agree) representing majority of respondents at 54%. The median of the responses was 4 and the range was 3.

Institutions

From the results, 4% of the respondents strongly agreed and another 41% agreed that the existing institutions were adequate to enforce laws, regulations, rules and orders. A proportion of 21% of these respondents disagreed while 30% remained neutral. Only 3% of the respondents said that they strongly disagreed with the statement. The responses had a mode 4 (agree) representing majority of respondents at 41%. The median of the responses was 3 and the range was 4.

On whether the existing institutions needed urgent restructuring and strengthening in order to cope with the demanding complexity of the financial sector, results indicate that only 6% of the respondents strongly agreed and another 42% agreed with the statement. Only 8% of the respondents disagreed while 43% remained neutral. A paltry 1% of the respondents said that they strongly disagreed with the statement. The responses had a mode 3 (neutral) representing majority of respondents at 43%. The median of the responses was 3 and the range was 4.

From the results, only 4% of the respondents strongly agreed and another 9% agreed that capital markets respond adequately to meet the economic needs of the country. A proportion of 54% of the respondents disagreed while 30% remained neutral. Only 3% of these respondents said that they strongly disagreed with the statement. The responses had a mode 2 (disagree) representing majority of respondents at 54%. The median of the responses was 2 and the range was 4.

Analysis of Dichotomous Data

Responses to questions for the dependent and independent variables were converted to dichotomous dummy and assigned values 1 (strongly agree and agree) and 0 (neutral, disagree and strongly disagree) and equated to agree and disagree respectively. The results from analysis of the dichotomous dummy are as shown below.

Infrastructure finance flows

The table 1 below shows dichotomous analysis of responses under infrastructure finance flows.

Table 1: Capital markets provide adequate finance for infrastructure projects

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	74	74.0	74.0	74.0
	Agree	26	26.0	26.0	100.0
	Total	100	100.0	100.0	

Results show that minority proportion of 26% agreed that capital markets provide adequate finance to fund public infrastructure investments. Majority of the respondents (74 out of 100) disagreed with the statement on the capacity of capital markets to provide adequate funds for infrastructure projects.

Policy framework

Tables 2, 3, 4 and 5 below show dichotomous analysis of responses under the policy framework.

Table 2: Policies are adequate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	74	74.0	74.0	74.0
	Agree	26	26.0	26.0	100.0
	Total	100	100.0	100.0	

From the results, 74% of the respondents disagreed that there are adequate policies to facilitate the uptake of infrastructure finance from the capital markets while 26% agreed on the statement.

Table 3: Policy review needed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	19	19.0	19.0	19.0
	Agree	81	81.0	81.0	100.0
	Total	100	100.0	100.0	

Results indicate that 81% of the respondents agreed that there is a need to urgently review the existing financial sector policies in order to promote innovativeness in infrastructure financing. Only 19% of the respondents disagreed with the statement.

Table 4: Policies by leaders for public good

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	19	19.0	19.0	19.0
	Agree	81	81.0	81.0	100.0
	Total	100	100.0	100.0	

Results indicate that 81% agreed that political leaders make public policy to serve public good and only 19% disagreed with the statement.

Table 5: Policies by leaders based on technical advice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	71	71.0	71.0	71.0
	Agree	29	29.0	29.0	100.0
	Total	100	100.0	100.0	

From the results, a proportion of 71% disagreed that political leaders base their policy decisions on well defined technical advice from senior government officials. Only 29% agreed with the statement.

Legal environment

Tables 6 and 7 show dichotomous analysis of responses under legal environment.

Table 6: Laws are adequate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	71	71.0	71.0	71.0
	Agree	29	29.0	29.0	100.0
	Total	100	100.0	100.0	

Results show that 71% of the respondents disagreed that the existing laws are adequate to govern the financial sector while 29% agreed with the statement.

Table 7: Laws review needed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	64	64.0	64.0	64.0
	Agree	36	36.0	36.0	100.0
	Total	100	100.0	100.0	

From the results, a proportion of 64% disagreed that the existing laws need an urgent review. A proportion of 36% agreed that the laws need a review.

Regulations

Table 8 and 9 show dichotomous analysis of respondents under regulations

Table 8: Regulations are adequate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	64	64.0	64.0	64.0
	Agree	36	36.0	36.0	100.0
	Total	100	100.0	100.0	

Results show that 64% of the respondents disagreed that the existing regulations are adequate to create order and efficiency in the financial sector. Only 36% of these respondents agreed that the regulations are adequate.

Table 9: Regulations review needed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	50	50.0	50.0	50.0
	Agree	50	50.0	50.0	100.0
	Total	100	100.0	100.0	

From the results, 50% of the respondents agreed that the existing regulations need an urgent review to align them with emerging sector needs while another 50% disagreed.

Institutions

Tables 10, 11 and 12 below show dichotomous analysis of respondents under institutions.

Table 10: Institutions are adequate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	50	50.0	50.0	50.0
	Agree	50	50.0	50.0	100.0
	Total	100	100.0	100.0	

Results show that 50% of the respondents agreed that the existing institutions are adequate to enforce laws, regulations, rules and orders efficiently and effectively in the financial sector. The other 50% of the respondents disagreed with the statement.

Table 11: Institutions review needed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	41	41.0	41.0	41.0
	Agree	59	59.0	59.0	100.0
	Total	100	100.0	100.0	

From the results, 59% of these respondents agreed that the existing institutions need urgent restructuring and strengthening to cope with the demanding complexity of the financial sector. A proportion of 41% disagreed with the statement.

Table 12: Capital markets meet economic needs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	41	41.0	41.0	41.0
	Agree	59	59.0	59.0	100.0
	Total	100	100.0	100.0	

Results indicate that 59% of the respondents agreed that capital markets respond adequately to meet the economic needs of the country. A proportion of 41% disagreed with the statement.

Reliability Test

Reliability test was done using Cronbach's alpha coefficient and the results are as shown below.

Table 13: Reliability test was done using Cronbach's alpha coefficient

Case Processing Summary

		N	%
Cases	Valid	100	100.0
	Excluded[a]	0	.0
	Total	100	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.739	.740	5

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance
Item Means	2.990	2.430	3.250	.820	1.337	.132
Item Variances	.877	.631	1.078	.447	1.708	.030
Inter-Item Covariances	.317	.189	.604	.414	3.187	.013
Inter-Item Correlations	.362	.203	.582	.379	2.870	.011

Analysis in table 13 above shows that had a Cronbach's alpha among the variable items is 0.739 which is higher than 0.7. The variable items were accepted as inter-correlated and therefore underwent parametric analysis.

Correlation Analysis

The analysis of correlation between dependent and independent variables is shown below.

Table 14: Correlation analysis between variables

		Infrastructure finance	Policy framework	Legal environment	Regulations	Institutions
Infrastructure finance	Pearson Correlation	1	1.000**	.073	.078	.228**
	Sig. (2-tailed)		.000	.468	.441	.023
Policy framework	Pearson Correlation	1.000**	1	.073	.078**	.228
	Sig. (2-tailed)	.000		.468	.441	.023
Legal environment	Pearson Correlation	.073	.073	1	.118	.022
	Sig. (2-tailed)	.468	.468		.244	.828
Regulations	Pearson Correlation	.078	.078	.118	1	.375
	Sig. (2-tailed)	.441	.441	.244		.000
Institutions	Pearson Correlation	.228*	.228*	.022	.375*	1*
	Sig. (2-tailed)	.023	.023	.828	.000	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Pearson's correlation coefficient (R) is defined within a range $-1 \leq R \leq +1$. When R is +1, the variables are perfectly correlated but when R=0, there is no correlation between the variables. When R=-1, the variables are negatively perfectly correlated (Mugenda, 2008). Infrastructure finance had a perfect positive correlation with policy framework (R=1.000) as shown in table 14 above. This means that policy framework was found to be a perfect predictor of infrastructure finance. Infrastructure finance had a weak positive correlations with legal environment (R=0.073) and regulations (R=0.078), both of which were insignificant at 95% confidence level. Legal environment and regulations were found to be poor predictors of infrastructure finance. Infrastructure finance had a weak positive but significant correlation with institutions (R=0.228) at 95% confidence level. Institutions were found to be a poor but significant predictor of infrastructure finance.

Regression Analysis

T-test was undertaken to determine whether the independent variables were statistically significant to affect the infrastructure finance flows. The regression model is represented as $Y= a+b_1X_1+b_2X_2+b_3X_3+b_4X_4+\varepsilon$

Where Y is the dependent variable and X_1, X_2, X_3 and X_4 are independent variables.

Y is infrastructure finance flows

X_1 is policy framework

X_2 is legal environment

X_3 is regulations

X_4 is institutions

a is the y-intercept

b_1, b_2, b_3 and b_4 are regression coefficients of X_1, X_2, X_3 and X_4 respectively

Table 15 below shows fitness of the regression model in determining the infrastructure finance flows.

Table 15: Fitness of regression model in determining infrastructure finance flows

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.550[a]	.302	.273	.678

a. Predictors: (Constant), Institutions, Legal environment, Policy framework, Regulations

The results presented above show an R square of 0.302 which indicates that 30.2% of change the infrastructure finance flows is explained by the combination of the four predictor variables.

The table below shows the results of regression analysis of variables with t-test value of 0.05 with two-tailed significance.

Table 16: Regression analysis of variables

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.438	.324		1.350	.180
Policy framework	.184	.082	.208	2.240	.027
Legal environment	.102	.084	.129	1.211	.229
Regulations	.125	.088	.164	1.425	.157
Institutions	.229	.081	.270	2.821	.006

Coefficients for the regression model are shown in table 16 above. The regression model is therefore:

$Y= 0.44 +0.18X_1 + 0.10X_2 + 0.13X_3 + 0.23X_4$; where Y is infrastructure finance flows, X_1 is policy framework, X_2 is legal environment, X_3 is regulations and X_4 is institutions.

All standardized beta coefficients (0.208, 0.129, 0.164 and 0.270) are positive which indicates that the predicted response increases with an increase in each of the predictor variable as shown in table 16 above.

The p-values for the y-intercept, policy framework, legal environment, regulations and institutions are 1.350, 2.240, 1.211, 1.425 and 2.821 respectively. All these p-values are more than 0.05 which indicates that the four independent variables are linearly significant to predict the outcome variable.

Analysis of Variance (ANOVA) was conducted on the variables and results are as shown below.

Table 17: Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.890	4	4.722	10.285	.000[b]
Residual	43.620	95	.459		
Total	62.510	99			

a. Dependent Variable: Infrastructure finance

b. Predictors: (Constant), Institutions, Legal environment, Policy framework, Regulations

ANOVA statistics presented above indicate that F statistic (10.285) is significantly different from zero. This means the model showed statistically significant linear association between the predictor variables and the dependent variable.

Interpretation of findings

The independent variables constitute the operating environment factors which are policy framework, legal environment, regulations and institutions. The dependent variable is the infrastructure finance flows.

The model is based on Likert scale data responses on adequacy of policy, legal, regulatory and institutional arrangements to facilitate the uptake of infrastructure finance in the capital markets.

Results on the policy framework show that about three quarters of the respondents were of the view that there are inadequate policies to facilitate the uptake of infrastructure finance from the capital markets. Results show that policy framework has a perfect positive correlation with infrastructure finance (R=1.000). The perfect positive correlation means that policy framework is a perfect predictor of infrastructure finance.

Under the legal environment, close to three quarters of the respondents believed that the existing laws are not adequate to govern the financial sector. Legal environment has a weak positive correlation with infrastructure finance (R=0.073) at 0.05 significance level. This correlation is not statistically significant and shows that legal environment is poor predictor of infrastructure finance.

Nearly two thirds of the respondents thought that the existing regulations are inadequate to create order and efficiency in the financial sector. Regulations has weak positive correlation with infrastructure finance (R=0.078) which is insignificant at 0.05 significance level. The weak positive correlation indicates that regulations are a poor predictor of infrastructure finance.

Half of the respondents averred that the existing institutions are adequate to enforce laws, regulations, rules and orders efficiently and effectively in the financial sector. Institutions have a weak positive but significant correlation with infrastructure finance (R=0.228) at 0.05 level of significance. This coefficient indicates that institutions are a poor but significant predictor of infrastructure finance.

Results show that almost three quarters of the respondents were of the opinion that the capital markets in Kenya do not provide adequate finance to fund public infrastructure investments. This is evident from the findings that operating environment factors (policy framework, legal environment, regulations and institutions) were inadequate to facilitate mobility of funds from private investors to infrastructure investments.

The reason for this inadequacy of operating environment factors can be explained by Public-interest theory where political and business leaders tend to make decisions without the

members of the society in mind, but in pursuit of their own individual interests (Gerston, 1988). This is underscored by studies in other countries like India and Indonesia where lack of enabling environment for attracting investors to fund their infrastructure needs is evident. Poor policies hamper private participation while weak legal and regulatory frameworks expose investors to higher levels of risk (Ray, 2015).

Results of t-test on the regression model show that the p-values for the y-intercept, policy framework, legal environment, regulations and institutions are all more than 0.05 (p values are 1.350, 2.240, 1.211, 1.425 and 2.821 respectively). The t-test at 0.05 level of significance indicates that the four operating environment factors were linearly significant to predict the infrastructure finance flows.

The results also show an R square of 0.302 which indicates that 30.2% of change in the infrastructure finance flows is explained by the combination of the four predictor variables. This is a weak contribution of predictor variables to the outcome variable which means that there were other factors contributing the remaining 69.8%. The model was found to be not a good fit between the operating environment factors and the infrastructure finance flows.

ANOVA statistics presented indicate that F statistic (10.285) is significantly different from zero which means that the model shows a statistically significant linear association between independent variables and the dependent variable. The ANOVA results show that the combined operating environment factors are good predictors of infrastructure finance flows.

Results show that more than four fifths of the respondents believed that political leaders make public policy to serve public good. In the contrary, close to three quarters disagree that political leaders base their policy decisions on well-defined technical advice from senior government officials. According to the Theory of administrative rationality, administrative organs should develop analytical techniques to assist senior public officials and politicians to carry out both *ex ante* and *ex post* evaluations of policies in order to bring rationality in the policy decision-making process (Smith, 1976). This shows a great departure of policy making process from the Theory of administrative rationality.

In his studies in East Asia, Ray (2015) found that political interests determine pricing of user charges by regulators thus distorting the real cost of infrastructure services and the market price of the associated risks. This means that political interests become an impediment to the infrastructure finance flows through regulatory “capture” contrary to the proposition Public-

interest theory which states that "regulation is supplied in response to demand of the public for correction of inefficient or inequitable market practices" (Gerston, 1988).

Almost three fifths of the respondents agree that capital markets respond adequately to meet the economic needs of the country. Oluoch (2009) found out that PPPs are used to create synergy between the public and private sectors in the delivery of infrastructure projects through financing, risk sharing and adoption of efficient management practices. According to Systems theory, "open" systems have the ability to interact with the environment through constant feedback mechanisms (Cole & Kelly, 2011). The ability for the capital markets in Kenya to respond to the country's economic needs shows that the markets are fairly open systems.

More than four fifths of the respondents propose urgent review of the existing financial sector policies in order to promote innovativeness in infrastructure financing. Only slightly more than a third of the respondents propose review of existing laws while a half want regulations revised to support delivery of infrastructure funds. Nearly two fifths of respondents suggest that the existing institutions need restructuring and strengthening to cope with the demanding complexity of the financial sector.

Conclusions

The research objective was to establish the extent to which operating environment factors affect efficient infrastructure finance flows in the capital markets in Kenya. This study has resulted in three main conclusions. Firstly, the study found out that majority of the respondents stated that there was lack of adequate policies, laws and regulations to promote good governance in the capital markets. Half of these respondents thought that the institutions lack the necessary capacity to operate efficiently and effectively. From these findings, it can be concluded that there are no adequate policy, legal, regulatory and institutional arrangements to facilitate the uptake of infrastructure finance in the capital markets.

Secondly, the study found out that majority of the respondents believed that policy makers do not base their decisions on competent technical advice from senior government officials as proposed by the Theory of administrative rationality. However, majority of the respondents agreed that capital markets respond adequately to meet the country's economic needs but do not provide adequate finance to fund public infrastructure investments. It can therefore be concluded that the policy, legal, regulatory and institutional regimes are poorly configured to

deliver financing of infrastructure projects in the capital markets of Kenya. It is worth noting that with an effective operating environment, the capital markets have the capacity to deliver finance to fund infrastructure investments.

Finally, the study found that majority of the respondents agreed that there is need for an urgent review of the existing financial sector policies in order to promote innovativeness in infrastructure financing. Majority of the respondents believed that the existing laws do not require review. Half of the respondents wanted the regulations revised to support delivery of infrastructure funds while a majority of these respondents suggested that the existing institutions need restructuring and strengthening to cope with the demanding complexity of the financial sector. It can be concluded that the financial sector policies, regulations and institutions are not strong enough to provide a supportive environment in delivery of infrastructure finance.

Recommendations

Infrastructure financing through the capital markets remains a big challenge in Kenya. Financial sector policies need to be reviewed in order to create a conducive environment for financing of infrastructure investments. The revision of these policies should be backed by evidence and be based on the international best practices. Expert advice and participation of all key stakeholders is required for effectiveness of these policies in addressing the challenges of infrastructure financing in Kenya.

The existing legal and regulatory frameworks also need to be reviewed in line with revised financial sector policies. The revised laws will offer the requisite protection to the providers of infrastructure finance while the new regulations will create efficiency in the capital markets. The institutional set up should be restructured and strengthened in conformity with the revised policies and laws. The reformed institutions will be able to cope with demands of the financial sector. There is need to establish an infrastructure finance unit at the National Treasury to enhance management of policy issues relating to infrastructure finance in Kenya.

The findings indicate that the policy framework, legal environment, regulations and institutions significantly affect the infrastructure finance flows through the capital markets in Kenya. Benchmarking studies can be conducted to enable enhancement of policies, laws, regulations and institutions for efficient and effective delivery of infrastructure finance

through the capital markets in Kenya. The findings have contributed to the knowledge in the area of infrastructure finance. Researchers should explore other areas which affect infrastructure financing of investments projects in order to come up with models which will enhance the knowledge in this area.

Recommendations for further study

It is recommended that further research be undertaken on effects of operating environment factors on infrastructure finance flows in the capital markets in Kenya. The research can focus on carefully selected respondents with expert knowledge in infrastructure finance. The respondents may include those in multilateral and bilateral institutions involved in infrastructure financing and development in Kenya.

It is also recommended that the research be extended to cover some countries with good practices in infrastructure financing and capital markets in Africa. The extended research will provide a comparative analysis between Kenya and other African countries on issues of infrastructure finance and capital markets.

Finally, it is recommended that research be conducted separately for each of the independent variables. An example is a study of how financial sector policies impact on infrastructure financing. Further research can also be conducted on other factors which affect infrastructure financing of investment projects.

References

Aduda, J., Chogii, R., & Murayi, M. T. (2014). The effect of capital market deepening on economic growth in Kenya. *Journal of Applied Finance & Banking, vol. 4*(no. 1), 141-159.

Babbie, E., & Mouton, J. (2009). *The practice of social research.* Cape Town: Oxford University Press.

Bell, E., & Bryman, A. (2007). The ethics of management research: an exploratory content analysis. *British Journal of Management*, 18, 63-77.

Bodie, Z., Merton, R. C., & Cleeton, D. L. (2009). *Financial economics* (2nd ed.). New Jersey: Prentice Hall.

Cambridge Economic Policy Associates Ltd. (2015). *Mobilizing finance for infrastructure.* Manchester: University of Manchester.

Capital Markets Authority. (2009). *CMA Quarterly statistical bulletin.* Issue 1/2009, Nairobi.

Capital Markets Authority. (2013). *Capital Market Authority strategic plan 2013-2017.* Nairobi.

Central Bank of Kenya. (2014). Nairobi. Retrieved June 19, 2016, from https://www.centralbank.go.ke/images/results%2012-year%20ifb1-2014-12%20dated%2027-10-2014.pdf

Cole, G. A., & Kelly, P. (2011). *Management: Theory and practise* (7th ed.). Hampshire: Cengage Learning.

Dane, F. C. (1990). *Research methods.* Belmont, CA: Brooks / Cole Publishing Company.

Ehlers, T. (2014). *Understanding the challenges for infrastructure finance: BIS Working Papers No 454.* Bank for International Settlements, Geneva.

Foster, V. (2008). *Overhauling the engine of growth: Infrastructure in Africa.* Washington: World Bank.

Froyen, R. T. (2009). *Macroeconomic theories and policy.* New Jersey: Pearson Education.

Gerston, L. N. (1988). *The deregulated society.* Belmont, CA: Brooks/ Cole Publishing Company.

GOK. (2016, May). Executive Order No. 1/2016. Nairobi.

Hyndman, R. J. (2008). *Quantitative business research methods.* Melbourne: Monash University.

IRA. (2016). Retrieved August 18, 2016, from www.ira.go.ke

Kenya Law Reform Commission. (2015). *A guide to the legislative process in Kenya*. Nairobi.

McKinsey Global Institute. (2013). *Infrastructure productivity. How to save $1 trillion a year.* McKinsey Global Institute.

Mugenda, A. (2008). *Social Science Research: Theory and Principles. .* Nairobi: Applied Research and Training Services.

NSE. (2016). *https://www.nse.co.ke/member-firms/firms.html*. Retrieved August 18, 2016, from www.nse.co.ke

Odero, M. L. (2010). *Public-Private Partnerships and the development of Infrastructure in Kenya: Understanding and resolving disputes.* LLM Thesis, University of Nairobi.

Oluoch, J. O. (2009). *Critical review of literature on the factors that determine the effectiveness of public private partnerships in financing public infrastructure projects.* PHD (Finance) Independent Study Paper, University of Nairobi.

Ray, S. (2015). *Infrastructure finance and financial sector development.* Asian Development Bank Institute. Tokyo: Asian Development Bank Institute. Retrieved July 10, 2016, from http://www.adbi.org/working-paper/2015/04/13/6593.investment.finance.sector.dev/

RBA. (2016). *http://www.rba.go.ke/index.php/en/retirement-benefits-schemes/retirement-benefits-schemes-col-280/registered-schemes*. Retrieved August 18, 2016, from http://www.rba.go.ke

Smith, B. (1976). *Policy-making in British government: An analysis of power & rationality.* London: Martin Robertson and Company Ltd.

Sullivan, G. M., & Artino, A. R. (2013, December). Analyzing and Interpreting Data From Likert-Type Scales. *Journal of Graduate Medical Education*, 541-542. doi:10.4300/JGME-5-4-18

The Infrastructure Consortium for Africa Secretariat. (2014). Retrieved July 16, 2016, from http://www.icafrica.org/fileadmin/documents/Annual_Reports/INFRASTRUCTURE_FINANCING_TRENDS_IN_AFRICA_%E2%80%93_2014.pdf

Tucker, E. W., & Henkel, J. W. (1992). *The legal & ethical environment of business.* Illinois: Richard D. Irwin, Inc.

UNIDO. (2006). (J. New, & M. Matteini, Eds.) Retrieved June 28, 2016, from https://www.unido.org/fileadmin/user_media/Publications/Pub_free/training_manual_on_sustainable_energy_regulation_and_policymaking_for_Africa.pdf